

Climate Change and Economic Impacts Analysis

WHAT IS CLIMATE CHANGE?

Beginning in the 1980s concern arose about increases in emissions of greenhouse gases (carbon dioxide and methane are two examples) resulting from human activities and whether increased concentrations would have an adverse effect on the global climate.

Over the past century average global temperatures have risen about half a degree, but scientists cannot say whether the increase has been caused by increases in human-generated greenhouse gases or by natural climatic variability.

Computer models have been developed that attempt to predict future climate changes, but they are widely recognized as inadequate, even though they are being improved.

WHAT IS BEING DONE ABOUT CLIMATE CHANGE?

The United Nations General Assembly created the Intergovernmental Negotiating Committee in 1990 to negotiate a climate change treaty—the Framework Convention on Climate Change—whose aim was to prevent dangerous human interference with the climate by reducing emissions of greenhouse gases.

In 1992 the FCCC was opened for signing at the Earth Summit in Rio de Janeiro. It entered into force in early 1993 and since then has been ratified by 160 countries.

WHAT IS THE CONFERENCE OF PARTIES?

The Conference of Parties to the FCCC was created to administer the implementation of the FCCC. At its first meeting in Berlin in 1995, the COP called for strengthening the FCCC by requiring industrialized countries to commit to emissions reductions after the year 2000.

In July 1996 the COP will hold its second meeting in Geneva to continue the negotiating process, which is expected to culminate with an agreement at the third COP in Japan in mid-to-late 1997.

WHAT IS THE INTERNATIONAL IMPACT ASSESSMENT MODEL?

The IIAM is a computerized model for analyzing the impacts of climate change policies on any country of the world. It is presently configured with data for 80 countries. It uses a state-of-the-art trade model to estimate how various climate proposals would affect broad trade patterns in the world economy. It then uses these results to drive a single-country applied general equilibrium model. This second model forecasts the impacts of climate change policies on the selected country.

HOW DOES THE MODEL WORK?

The user can choose from a list of proposals representing the major initiatives being considered in the negotiating process. Three baseline scenarios for economic growth and carbon emissions, consistent with the high (IS92f), middle (IS92a), and low-emission scenarios developed by the Intergovernmental Panel on Climate Change (IPCC) are available as starting points. The user also specifies key assumptions about how economic changes caused by climate policies would affect world trade. A full applied general equilibrium model of the selected country is then run and results reported and displayed to the user. A variety of assumption affecting the magnitude of impacts can be manipulated to explore the range of possible results.

WHAT ARE THE BENEFITS OF THE MODEL?

The IIAM allows interactive analysis and discussion of alternative climate change mitigation proposals and their effects on individual countries. It can accommodate a wide range of views on future economic conditions and the ways in which different economies could respond to those conditions that might result from the current negotiations on changes to the Framework Convention on Climate Change. The impacts that can be estimated by the IIAM include Gross Domestic Product, Unemployment, Terms of Trade, Leakage of Carbon Emissions, Implicit Carbon Tax, Real Wage Rates, Exports and Imports, and Oil Prices.

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